A VIDEO CALLED "DRILL TODAY: SURVIVE TOMORROW" AND A STUDY OF COALITION BUILDING AND ALTERNATIVE FUNDING

Fire Service Financial Management

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ABSTRACT

It was a problem that there were no video-based programs currently being used to teach fire and tornado drill procedures in the elementary schools in Irondale, Alabama. The research questions were as follows: (a) What video-based programs were available? (b) Was funding a problem for principals in obtaining a video-based program that teaches fire and tornado drill procedures? (c) Could an alternative funding model be used to create a cost-effective, video-based fire and tornado drill procedure program. The answers to these questions all helped to develop a cost-effective and alternatively funded video-based program that teaches fire and tornado drill procedures in the elementary schools of Irondale, Alabama (purpose). Descriptive research surveys indicated that there were no video-based programs currently being utilized and that funding was the primary reason. The surveys also made evident the need for such a video. The final question explored alternative funding in a problem-solving model to determine if a video could be produced. Through action research, a professional quality video on fire and tornado drills was created, copied, and sent to all primary educational schools in Alabama utilizing a new funding model. Alternative funding, building coalitions, the utilization of video media, need validation, and creative exploration were all recommended in this project.

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INTRODUCTION

The problem of there being no video-based programs currently being used to teach fire and tornado drill procedures in the elementary schools in Irondale, Alabama, has contributed to the lack of standardization of those procedures. The purpose of this project is to develop a cost effective and alternatively funded video-based program that teaches fire and tornado drill procedures in the elementary schools of Irondale, Alabama (see Appendix A-Drill Today-Survive Tomorrow video). Descriptive and action research will be used to answer the following questions: (a) What video-based programs are available? (b) Is funding a problem for principals in obtaining a video-based program that teaches fire and tornado drill procedures? (c) Can an alternative funding model be used to create a cost effective, video-based fire and tornado drill procedure program?

BACKGROUND AND SIGNIFICANCE

Before exploring the prospect of creating a video-based drill program, the background issues should be reviewed. The contributing issues to be considered are local school drills, schools and fire, codes and laws, school bus emergency evacuation, fires and tornadoes involving mobile homes, local preparedness, shelter construction, disabilities, investments, drill behaviors and social science, inconsistent safety messages, teacher fire and tornado drill preparation, the National Fire Prevention Week theme, the Federal Emergency Management Agency's (FEMA) Project Impact, school violence, and funding.

Local School Drills

Second only to private dwellings, the schools in the United States represent a cherished investment and a sacred, entrusted institution (S. Adams, personal communication, April 14, 1999). Willingly, Americans send their children to school fully expecting them to return home safely at the end of the day. Great effort has been expended to ensure a serene environment in these temples of learning. Of all the modern threats to these temples, the ancient forces of fire and tornadoes continue to be primary adversaries.

In a personal interview, Fire Marshal Jim Jarrell of the Irondale Fire Department (March 1, 1999) said, "Fire and tornado drills in the schools of Irondale have ranged from excellent to poor according to the priorities of the school principal. Recently, they have been much better, but our children's future demands consistency" (J. Jarrell, personal communication, March 30, 1999). "No guide has been utilized to assist the administration in preparing drill procedures, and as far as I know, there are no

educational videos" (B. King, personal communication, April 15, 1999). The fire service needs to be involved in school safety because of the significant risks associated with these occupancies. Besides, traditional community roles place the fire service as guardians of the community's infrastructure.

Schools and Fire

As with most occupancies, fires in educational occupancies were down in 1997 from the previous year. In fact, the most recent data suggests that there was a reduction of 11.8% in the educational category, compared to the 4.6% reduction in the overall incident rate (Karter, 1998). There were an average of 8,000 structure fires causing $96.8 million in damage per year reported in educational properties in the years between 1992 and 1996 (Ahrens, 1999). The most recent figures suggest that approximately 6,000 fires are occurring in educational occupancies each year. This reduction of two thousand fires per year is a welcome trend of improvement. As noted, the 6,000 fires occurred in the 120,000 public and private elementary and secondary schools in the United States.

> That means fire hits one in every 20 schools each year. It also means every child has a better than 50/50 chance that fire will hit a school he/she attends before finishing the 12th grade and a significant chance that fire will occur during school hours. If we want to keep those fires from killing our children, we must keep preparing them and that means school fire drill. (National Fire Protection Association [NFPA], 1999).

The leading cause for these fires was incendiary or suspicious in nature for all educational facilities except for nursery schools. Cooking was indicated as the leading cause of fires in that specific category. It is interesting to note that statistics show a gradual increase in the incendiary or suspicious origin fires as the students get older (Rohr, 1999).

On December 1, 1958, one of the most tragic school fires in history occurred at the Our Lady of the Angels School in Chicago, Illinois. A total of 93 students and staff perished in that fire. "Our Lady of the Angels was not the worst school disaster in American history. That dubious distinction belongs to Consolidated School in rural New London, Texas, where on March 18, 1937, a natural gas explosion demolished the building and killed 327 pupils and teachers" (Cowan & Kuenster, 1996, p.vii).

> Walter Cronkite, then a cub United Press International reporter, was one of the first news reporters on the scene. In a 1977 interview Cronkite said, "I did nothing in my studies nor in my life to prepare me for the story of the magnitude of the New London tragedy, nor has any story since that awful day equaled it" (Rohr, 1999, p.97).

News of the fire spread across the globe in a matter of hours. "One of the first messages President Roosevelt received came from Reichsführer Adolf Hitler, who expressed his own and the German people's sincerest sympathies on the tragedy" (Rohr, 1999, p.96).

The nation's second worst school tragedy occurred March 4, 1908, when fire swept the Lakeview Elementary School in Collinwood, Ohio, killing 178. "Although the death toll at Our Lady of the Angels was not as great, it remains more than a defining episode in the colorful and tragic history of a great city, for it led to a complete overhaul of school fire safety laws in the United States, thereby changing the manner in which school children are housed" (Cowan & Kuenster, 1996, p.vii). Within months of the Our Lady of the Angels tragedy, the National Fire Protection Association and the Los Angeles Fire Department participated in school fire tests to determine a temperature beyond which children and teachers could not be expected to enter a corridor from a relatively cool room. That temperature was

determined to be 150° Fahrenheit (65° Celsius). In a similar test, the National Research Council of Canada determined that the maximum survivable temperature of breathing air was 300° Fahrenheit (140° Celsius). Tests such as these were used as the basis for developing sound engineering and architectural practices as well as encompassing codes related to educational occupancies (Cote, 1997).

Codes and Laws

In addition to the typical state laws that address educational occupancies, the National Fire Protection Association's NFPA 101® Life Safety Code® (Cote, 1997A) was partly developed to focus on the safety of children in schools. Exits, hallways, interior finishes, extinguishers, alarm systems, and preventative maintenance are all addressed in the Life Safety Code®. The Life Safety Code® has been adopted in 33 states and by various federal agencies. The roots of NFPA 101 reach to 1913, when NFPA appointed its first Committee on Safety to Life. The Committee's first effort produced a pamphlet called "Exit Drills in Factories, Schools, Department Stores, and Theaters." This pamphlet and later fire preparedness materials laid the groundwork for the Life Safety Code®. The committee continued to dedicate itself to studying notable fires and an examination of the causes for loss of life (NFPA, 1999).

Many of the provisions of modern codes are based on the tragic experience gained in large fires. The requirement that all schools have alarms systems is directly related to the Our Lady of the Angels School fire, while the required gas odorization process (NFPA 551M, Odorization of Gas) and use of fuel gases (NFPA 58, Storage and Handling of Liquefied Petroleum "LP" Gases) are clearly related to the New London fire. One of the later educational provisions of the Life Safety Code® relates to the rooms occupied by preschool, kindergarten, or first-grade pupils. They cannot be located above or

below the story of exit discharge (NFPA, 1997). That same provision is located in the regional building code that is used in Alabama (Standard Building Code Congress International, Inc. [SBCCI], 1985A). Of all the provisions of the Life Safety Code®, the requirement of one drill per month, with two during the first month of school is clearly the most related to the fire drill issue. The state law of Alabama also requires one drill per month while school is in session (Robison, 1998).

School Bus Emergency Evacuation

Appendix D of the "Bus and Transportation Guidelines" (Alabama Department of Education [ADE], 1999) covers emergency school bus procedures such as unsafe positions, mandatory evacuation, and alternative routes. Fire drills on buses are just as important as those in buildings. In fact, because of the confinement, temperatures in bus fires can reach 2,000 degrees Fahrenheit (Nordberg, 1998). None of the fire drill programs reviewed in this research addressed bus fire drills.

Tornadoes and Schools

Acts 2:2 (New American Standard version) states that "suddenly a sound like the blowing of a violent wind came from heaven and filled the whole house where they were sitting" (Ryrie, 1978, p. 1646). Unlike fires, most people never have a personal experience (as the apostle Luke did) with a tornado. Many rely on what they have seen on television to provide them with information on self-protection. From the line "It's a Twister!" in the *Wizard of Oz* (Leroy & Fleming, 1939) to "an F-5 tornado is the finger of God" in the movie *Twister* (Kennedy, Bryce, Crichton, & DeBont, 1996), Hollywood has glamorized tornadoes and gave the impression that close encounters are survivable.

Fire drills are required in schools as a result of laws created to respond to tragedy. Tornado drills in schools were also born of disaster but are not legitimized by law. However, the threat of disaster is just

as real. In 1974, four schools were destroyed on a Saturday afternoon in Xenia, Ohio, by a tornado (Sharp, 1999). On April 8, 1998, central Alabama experienced a tornado that destroyed two schools (Ruisi, Glover, & Scales, 1999). Once again, on May 5, 1999, a tornado destroyed an elementary school and a high school in Oklahoma ("Tornado victims," 1999). All of these storms were of the magnitude of F-5 (Sikora, 1999). The F-5 classification is according to the Fujita tornado scale.

> This scale was developed by Dr. Theodore Fujita to classify tornadoes based on wind damage from F-0, the weakest, to F-5 the strongest of tornadoes. All tornadoes, and most other severe local windstorms, are assigned a single number from this scale according to the most intense damage caused by the storm (Alabama's ABC 33/40, 1999, p.3).

Although they makeup only 2% of the total number of tonadoes, F-5 storms produce winds between 261-318 MPH, cause 70% of the tornado-related deaths, and can last over one hour (National Weather Service [NWS], 1992).

"There is something in the wind..."- William Shakespeare.

While most tornadoes occur in the summer months, they can occur any time during the year and anywhere. Though most of the fatalities occur in rural or suburban settings, tornadoes do occur in urban centers (Kort, 1999). Tornadoes are most likely to occur between noon and 6:00 P.M. (NWS, 1998) but have been known to occur at all hours of the day or night. However, year-round schools make the tornado season a moot point. In Alabama (between 1950 and 1996), 66 tornadoes occurred at 2:00 P.M. (Rawis, 1997). By May of this year, the total number of national tornado deaths occurring in 1999 (80) was down from the figure reported in May of 1998. These figures are but a fraction of the deaths produced on March 18, 1925. On that day, 689 deaths

occurred in the states of Missouri, Illinois, and Indiana as a result of the deadliest tornado in history. Tornadoes can be compared and contrasted with fires. Deaths associated with fires and tornadoes are down; however, unlike the fire incident rate, the number of reported tornadoes has jumped from 380 to 450 reported for the same time period in 1998 and 1999 (Sharp, 1999A). Alabama ranks third among states in the number of tornado deaths (Garrison, 1999).

Fire, Tornadoes, and Mobile Homes

"Alabamians love mobile homes, so much so that they made buying a factory-built house as popular as building a traditional home during the past decade. Alabama has become the nation's third-fastest-growing market for mobile homes, with a 53% increase in the number of homes since 1990, a *Birmingham News* analysis found" (Blackledge, 1999B, p. 13A). "This is troubling because people in mobile homes are more likely to die from tornadoes and fires than those in more sturdily constructed housing. Since 1980, 61% of all tornado fatalities occurred in mobile homes" (Blackledge, 1999, p. 13A). "From 1994 to 1998, there were 7.6 mobile home fire deaths per 100,000 people compared to 4 deaths per 100,000 in other homes" (Blackledge, 1999A, p. 13A). The pattern of deaths associated with mobile homes is an indicator of needed drill education. The behaviors that children learn in school tornado and fire drills should be transferrable to the home setting. Many mobile homes are used as temporary classrooms at Alabama schools. The school system serving the City of Irondale uses 250 portable classrooms (W. Sisk, personal communication, August 12, 1999).

Local Preparedness

To prepare schools for the menace of tornadoes, the Jefferson County Emergency Management

Agency (EMA) provides information to schools through a variety of publications. In *School Disaster Planning: A Guidebook for School Emergency Preparedness* the author states that "schools are organized to deal with normal educational tasks" (LaValla, Stoffel, & Erwin, 1991, p 2). When a disaster strikes, new and unusual problems emerge in a very short time span. That is why disaster preparedness is so important. Of all the disaster preparedness measures, emergency and disaster drills are the most important (LaValla, Stoffel, & Erwin, 1991). The primary goal of any disaster drill is to improve operations, decision making, planning and management skills of all personnel (Schlei, 1995, p. 12). *The Site Emergency Planning Workbook* provides information about specific topics such as the Federal Emergency Management Agency publication *Tornado Protection: Selecting and Designing Safe Areas in Buildings.* This document explains that adults require 5-6 square feet per person in shelter space (Jefferson County Emergency Management Agency, 1998).

Shelter Construction Consideration

Tornado shelters for institutions, public buildings, and homes were once the subject of many federal documents that are no longer published. FEMA and other publications such as *Standards For Fallout Shelters* (1979), *Home Shelters* (1987), and *Family Shelter Design and Protective Construction* (Department of Defense, 1962) have long gone out of print. Appendix "F" of the Standard Building Code last referenced shelters in 1985 (SBCCI, 1985). The only applied research project that could be located on shelters was written by James F. Madden and entitled *Shelter in Place Program for Chemical Emergencies Near Schools* (Maden, 1994). This lack of shelter attention results in glaring deficiencies in most emergency action plans. For example, in FEMA plan NETC 6900.2, entitled Occupant Emergency Plan (FEMA, 1998B), shelters are briefly mentioned on page 10, along with

questionable response directives. FEMA has recognized this gap and is currently funding wind research and sheltering projects, such as the one that produced the document *Taking Shelter From the Storm: Building a Safe Room In Your Home* (FEMA, 1998). This publication provides detailed plans and blueprints for building adequate protection from a storm. Strengthening an interior section of a building as an enhanced tornado protective area can help save many lives and meet budgets (Harris, Mehta, & McDonald, 1992). Based on the work of Texas Tech researchers, it was determined that it is possible to provide a high level of protection from tornadoes for occupants of schools and many other types of building. For a cost of less than 4% of the building, the design should provide for an accessible, usable, and affordable shelter space. The Tulsa, Arizona, Project Impact Coalition recently demonstrated a storm-safe room designed for residences. This concept should extend to schools and other buildings (G. Ball, personal communication, March 1, 1999).

Disabilities

> People with disabilities are increasingly moving into the main stream of society and contributing to the diversity which has been this country's strength. It is only right that they be provided with the same level of safety as the rest of society as referenced in the Americans with Disabilities Act-ADA (FEMA, 1995).

Information concerning needs, special movement aids, appliances, notification devices, and special planning have rarely been included in drill procedures. A serious effort should be made to address this special topic (Plaugher, 1992).

Investment

There are two elementary schools, one middle school, and one high school in the City of Irondale.

All four schools are part the Jefferson County School System. This school system services rural Jefferson County and several cities. There are approximately forty-two thousand students enrolled in the system (J. Sisk, personal communication, August 12, 1999). Schools and day-care centers represent the most important asset of a community—the living embodiment of its future. They must be able to withstand disasters without endangering the children they house. In addition, many schools serve as primary shelter sites during and after disasters (FEMA, 1998A). A fire department is charged with the responsibility of protecting life and property within a jurisdictional area. Schools (which are part of the of the community's infrastructure) are a vital resource and costly to replace. Director of New Construction W. C. Sisk of the Jefferson County (Alabama) Board of Education said that the Oak Grove High School (destroyed by a tornado on April 8, 1998), is being replaced for $16,727,000.00. For the past year, the 1,000 students who normally attend there were required to travel some distance to attend another school. It would be impossible to calculate the loss in terms of productivity, inconvenience, and community identity associated with this temporary arrangement (W. Sisk, personal communication, June 1, 1999). The burden of replacing a destroyed school can be easily characterized by the comments made by Cullman County (Alabama) Board of Education President Phillips Crumbley after a fire recently destroyed a high school and middle school. He said that "rebuilding the schools probably will cost up to two million more than what insurance coverage will provide" (Walton, 1999, p. 11A).

Drill Behavior and Social Sciences

Drill procedures should be built on a foundation consisting of the characteristic of the threat and the probable human response to that threat. It is well documented in a number of studies and probability

models how people will react to a threat. Paulsen, Canter, and most recently, Bryan documented the development of this literature from the historical and theoretical perspectives (Chubb, Groner, & Shephard, 1998). Chubb and others, suggested that situational awareness is an important part of the decision-making process and that public fire education (particularly evacuation planning and drills) are of value. Benthorn and Frantzich have shown that people prefer a familiar exit, even if the distance is longer to that exit than to the nearest emergency exit (1998); and alarmingly, Brennan states that "occupants who participate in drills (usually at work) rarely appear to reflect on the safety aspects of the exercise" (1998, p. 224).

Between August 31 and September 2, 1998, The First International Symposium on Human Behavior in Fire was held in Belfast, Northern Ireland. The aforementioned studies from that gathering are germane to drill procedures and are present here as examples of the recent social science pertaining to drill behaviors.

Fire and tornado drill procedures are usually taught through psychomotor skill learning. This domain of learning "refers to the ability to physically manipulate an object or move the body to accomplish a task" (Westhoff, 1990, p.57). "Educators have long recognized the ability of humans to learn by observing and imitating, which is called observational learning" (Barker, 1997, p. 61). Television programing accounts for much of the observational learning influence on children today (HHKSciGuy, 1999). Why is there such an emphasis on television? Because it is the most powerful educator in our society (Wildmon, 1985). Not only do children in primary grades watch between 15 and 25 hours of television a week, but studies show that 60% of families have altered their sleep patterns because of television (Liebert, Neale, & Davidson, 1973). With this type of appeal, educators have accessed the

impact television has on children. Albert Bandura (HHKSciGuy, 1999) discovered that children acquired new behaviors and modified other ones through watching how older people behave on television. Perhaps the strongest evidence of the influence television has on learning is documented in a recent essay entitled *The Impact of Sesame Street on Preschool Children: A Review and Synthesis of 30 Years' Research*. Reported in this article are consistent patterns of data collected over 30 years that indicate the significant positive effect *Sesame Street* has on its viewers across a broad range of subject areas. Within this report is the following comment: "Although a number of television series for children have been produced and broadcast since television was developed, no series prior to *Sesame Street* had attempted to address a set of specified educations goals: to teach a curriculum" (Fisch, Truglio, & Cole, 1999 p. 165). The literature covered in this review stands as a powerful testament to the potential for television (and *Sesame Street* in particular) to serve as an educational tool. As these studies demonstrate, *Sesame Street* exerts a significant effect on children's academic skills and social behaviors (both in the United States and abroad). Measurable effects can endure for as long as 10 to 12 years, and those effects are consistent across countries and cultures (Fisch, Truglio, & Cole, 1999).

Akin to television is the video media. Blockbuster, the only national video specialty chain with more than 4,000 stores, reports that they operate a store within a ten-minute drive of virtually every major U.S. neighborhood. Nearly 1,500 videos are rented from U.S. Blockbuster stores each minute, 24 hours a day, 365 days a year. The video rental business has increased in size each year of its existence. Blockbuster Store Manager Mike Smith (Center Point, Alabama) went on to say that "From these facts it can be discerned that the American people are conditioned to watching videos for entertainment and information" (J. Smith, personal communication, May 15, 1999). It is only logical to

utilize this media in teaching drill behaviors (G. Kelly, personal communication, Feburary 16, 1999).

This year, the National Research Council of Canada and the National Fire Protection Association cooperated in a study that sought to determine if the type of fire safety material provided and the way in which it was presented would have an impact on the participants' behaviors and attitudes toward safety. It confirmed that good educational tools (video was used in the study) and a participatory teaching approach are the best ways to obtain learning results (Prouix, 1992).

Inconsistent Safety Messages

For many years, information about being prepared for disasters was piecemeal, non-scientifically inspired, or inconsistent. An example of this inconsistency is the reference contained in a Texas Tech Wind Research Laboratory brochure (Institute for Disaster Research, 1999) that advises motorists to seek shelter from tornadoes under bridges. Other organizations, such as the NWS, strongly recommend that a person finding himself threatened by a tornado should abandon his vehicle and seek shelter in a substantial building or lie flat in a depression in the ground. Dr. Rocky Lopes of the American Red Cross realized how confusing this situation was and spearheaded an effort to standardize disaster safety messages. Because research proved that when the public receives consistent information, they will prepare and respond when disaster strikes, the National Disaster Education Coalition reviews and approves standardized safety messages. Many important safety organizations and government bodies belong to the coalition. Their work is contained in a document entitled *Talking About Disasters: A Guide for Standard Messages* that is published by the American Red Cross. Preparedness programs that predated this 1999 document typically contain inconsistent messages (Lopes, 1999).

Teacher Preparation

With the abundant examples of catastrophic fires and tornadoes striking schools, one would surmise that fire and tornado drills would be a routine matter for educational occupancies. This is simply not the case. Part of the problem of non-standardized life safety plans for schools originates in the preparation curriculum for teachers and administrators. "Neither pre- nor in-service programs that relates to certified teachers in the State of Alabama address life safety," stated Dean Terry Robertson (University of Montavello, Alabama) in a personal interview conducted on April 19, 1999. "In fact," Dean Robertson went on to say, "only in the intern's section of the master's program are the students required to check off that they have read a school's emergency plan." In some cases, the intern has discovered that there was no plan in existence. Dean Robertson made an interesting observation in his interview: "A primary weakness that most educational institutions have is the failure to connect to the community." The resulting isolation has contributed to the lack of standardized planning. An administrator of a local school made this point: "Even if we had the background to prepare fire and tornado drill educational programs, I am not sure that we could devote the time needed to that project" (C. Blackwell, personal communication, May 5, 1999). To determine if programs were currently available but not used, the Birmingham Public Library System, the local Red Cross affiliate, the Alabama Department of Education, and the local affiliate of the National Safety Council were consulted. All reported that they have no fire or tornado drill videos for schools. The United States Department of Education's Learning Resource Network is connected to more than 35 federal agencies. This data base was queried and no programs (results) were found.

National Fire Prevention Week Theme

Each year the National Fire Protection Association rolls out a fire prevention campaign with themes that are supported by products and materials. This year is the second year of a three-year program promoting fire drills. The program is called "Fire Drills: The Great Escape" (Siegel-McKelvey, 1999) and it is part of Strategy #3 (promotion and communication) of the Public Education Division's Strategic Plan (NFPA Public Education Division, 1998). "It is the goal of the NFPA to inspire entire nations to move toward greater safety from fire, community by community, starting with yours," says the vibrant Meri-K Apply (Vice-President of Public Education) (1999, p.64). Many of the lifesaving behaviors learned in school fire drills are easily transferred to other settings. Consequently, lives have been saved in home fires as a result of children participating in school fire drills (J. Robison, personal communication, March 18, 1999). The Irondale Fire Department has always utilized the prepared NFPA materials during Fire Prevention Week (B. King, personal communication, June 5,1999). A fire drill video would complement this theme and possibly change the public's fire safety behavior. NFPA reported the following statistics in a 1997 survey (NFPA, 1997A, [On-line]):

> Only 53 percent of Americans have an escape plan, and of those, only 16 percent have practiced it. Thirty-eight percent of Americans said they have never thought about practicing an escape plan and 33 percent said practice wasn't necessary. Only 53 percent of Americans said they would leave immediately if the fire alarm sounded at work.

The same principles used in school drills should be employed in the home.

FEMA's Project Impact

As a consequence of the April 8, 1999, tornadoes in central Alabama, a solemn and determined group of mayors, commissioners, fire and police chiefs, service groups, emergency workers, and

business leaders gathered in silence to hear the storm sirens blare for 60 seconds in memory of the human losses sustained one year earlier. The siren memorial was thoughtfully planned to serve as a functional moment in time in which the past was remembered while the future was envisioned. Through the innovative program entitled "Project Impact," those blaring warning devices that symbolize a community in chaos have now given way to the promise of planning and preparation. The Jefferson County Emergency Management Council signed a FEMA Project Impact agreement on April 8, 1999. Mr. John Copenhaver (Director of FEMA Region IV) signed for the federal government, while Mrs. Mary Buckelew (Jefferson County Commissioner) and Mr. Pat Reynolds (Mayor, City of Vestavia Hills, Alabama) signed for the EMA Council as Jefferson County EMA Director Woody Odom looked on. Mr. Copenhaver recalled that with over 200 presidentially declared disasters in five years (in which no state was spared), the FEMA Director James Lee Witt developed Project Impact to challenge the country to undertake actions that protect families, businesses, and communities by reducing the effects of natural disasters (FEMA, 1999). Those actions involve four phases: partnerships, assessing risks, prioritizing needs, and building support and communicating what is being done. Director Witt recently said that "There is no need for this country to lose 600 lives, $2.8 billion and thousands of homes, jobs and businesses to natural disasters every year. If we take our responsibility seriously, we will make a difference" (Ryan, 1999, p. 14). Life safety planning for schools falls within the mitigation efforts of the "prioritizing needs" phase of the Project Impact process (J. Copenhaver, personal communication, April 8, 1999).

School Violence

It is hard not to notice the recent violent acts perpetrated in schools across America. The

communities of Jonesboro, Arkansas; Carrollton, Georgia; Littleton, Colorado; Conyers, Georgia; West Paducah, Kentucky; and Springfield, Oregon have been changed forever, and America has demanded action. President Bill Clinton responded by hosting the White House Conference on School Safety on October 15, 1998 (White House, 1998). Locally, a two-day summit on youth violence is being held in Dothan, Alabama, beginning on October 6, 1999, and will spotlight the Alabama State Attorney General Bill Pryor, various school officials, and public safety representatives from several of the communities listed above. It is sad to note that no reference was found indicating that a summit on fire or tornado safety of students was ever held. While the number of school threats and acts of violence have been increasing in the news, a survey by the United States Center For Disease Control and Prevention actually shows that violence at schools has declined since 1993 (Smolkin & Wehrman, 1999). Recent mass shootings are certainly the worst, but by no means the first, disturbance in schools. School crimes occur in classrooms, assembly areas, gymnasiums, bathrooms, and on the grounds. No one has suggested abandoning these areas or normal school activities in order to reduce exposure to these risks, and it makes no sense to start now (NFPA, 1999). The emphasis on this one threat to school safety carries the risk of overshadowing other components of life safety. In Jonesboro, Arkansas, a student allegedly activated the school's fire alarm, sending students into an ambush. Although the school's staff is responsible for leading all school building occupants to a safe place outside known as the security zone (Stop Disasters, 1995), no one could have anticipated their violent fate. Arkansas State Fire Marshal Ray Carnaham conducted a national telephone survey to determine if a fire alarm had ever been used in this manner and found no similar occurrences (R. Carnaham, personal communication, June 3, 1999). The principal of Westside Middle School reacted by saying that they

were not going to have any more fire drills this year ("Announce fire drills," 1998). Appropriately, Arkansas Fire Marshal Ray Carnaham responded by enforcing the state code requiring drills. Sensing the psychological stress produced by the shootings, the Jonesboro Fire Department used three off-duty companies and thirty off-duty firefighters to hold fire drills the next month. With this off-duty help, the firefighters were able to place a uniformed officer in each classroom before the drill. Every classroom was briefed about the importance of fire drills in schools (City of Jonesboro, Arkansas Fire Department, 1999, p. 15). Assistant Chief Rusty Bradley said that "the firefighters walked out with the students to an area completely surrounded by stationed fire apparatus" (R. Bradley, personal communication, May 16, 1999). These measures seemed to be successful in eliminating any anxiety within the student body or school faculty (R. Carnaham, personal communication, May 16, 1999).

> In the wake of several incidents of firearms violence in the school setting, the school fire drill has come under scrutiny, but the NFPA feels it is essential that school officials understand the importance of fire drills in maintaining and improving their fire safety records.
>
> America's schools have long had a strategy for fire safety and it has prevented catastrophic loss of life in fires for nearly 40 years. But those lessons were learned at the price of hundreds of young lives earlier in this century, and we don't want to pay that price again. Therefore, it is essential that school officials continue to do what safety requires, including the appropriate use of school fire drills to train our children to be safe when fire strikes (Comolette, 1999, p.80).

Funding

Schools are struggling to find funding for new as well as existing programs. School systems have been the victims of unfunded mandates for years. Just keeping up with the status quo is a day-to-day

burden. At this point, the Jefferson County School System (like the Irondale Fire and Rescue Department) does not have the resources to invest in commercialized products that teach drill behaviors (B. Wright, personal communication, March 20, 1999).

A quick check on the Internet revealed that in Lacey, Washington, 14 levy or bond issues supporting school maintenance failed to pass (Ivey, 1999). This year, on the other side of the country, New Hampshire was the latest state to fight over funding for schools. Schools are losing their main source of cash and are considering imposing unpopular taxes for support (Foer, 1999).

The fire service is also experiencing funding problems. It should be noted that the spark that ignited the taxpayer revolution was the fire service. In 1978, California citizens became enraged when they learned that fire captains retiring with twenty years of service from the Los Angeles Fire Department would receive $70,000.00 annually (T. Turner, personal communication, February 12, 1999). "Voters passed Proposition 13 that rolled back taxes and specified that new methods were needed to finance public services" (National Fire Academy [NFA], 1997, p. 7-3).

> It is also reasonable to assume that it is unlikely that local fire services will see any appreciable increase in the share of available local funds, and may be identified as another funding cutback source since fire is not even mentioned when the topic of local problems are discussed (Peterson, 1998 p. 28).

As a result of these conditions, fire chiefs report three common trends in local finance: (1) many municipalities were experiencing zero or negative growth in their tax base; (2) department heads were expected to include proposals that would generate funding when advocating new programs; and (3) there was greater emphasis on innovation (NFA, 1997, p.7-5).

All things seem to indicate alternative funding as the only means to create programs that teach fire and tornado drill behaviors. In a *Firehouse* magazine article about the fire service in the millennium, the authors predicted this scenario by stating that “strategic partnerships will be critical to success” and that the fire service should “develop expertise in the politics of partnerships” (Appy & Compton, 1999, p. 48).

Alternative funding is defined by Colleen Heilig (Program Chair for Planning and Information Management of the National Fire Academy) as "funding coming from non-traditional sources...not coming from the tax base" (C. Heilig, personal communication, February 10, 1999). The purpose of alternative funding is to obtain revenue, alter behavior, and redistribute resources (NFA, 1997, Slide E7-4). “Alternative revenue sources should be considered for the right reasons, and they can be utilized to improve effectiveness, efficiency, equity, or simply provide additional revenue” (Damrell, 1995, p.17). Furthermore, "private sources such as corporations and foundations are good sources for funding capital purchases, pilot programs, and prevention resources” (U. S. Fire Administration, 1993, p. 160). "Public and private partnerships (alternative funding) can do a lot of good in achieving common goals. This year, the NFPA, Procter and Gamble, Kidde Safety, and the USAA Educational Foundation have pooled their resources and expanded the ‘Fire Drills: The Great Escape’ program” (Reese, 1999, p. 135). In a report entitled *Fire Prevention 2000: Challenges & Solutions* (1998), forty-two fire service leaders identified coalitions as a unified focus for overcoming resource deficiencies in the next century. “Fire Drills: The Great Escape” is an example of a unified focus.

The researcher reviewed Chapter VII of the *Fire Service Financial Management Student Manual* (NFA, 1997), the United States Fire Administration (USFA) publications FA-41, *A Guide to*

Funding Alternatives for Fire and Emergency Medical Service Departments (USFA, 1993), and FA-186, *Fire Service Resource Guide* (USFA, 1999), and could not find any reference to fire or tornado drill videos. Nor was there anything in Larry A. Damrell's EFO paper entitled Alternative Funding Sources for the Fire Service (Damrell, 1995). This paper contains an extensive list of developed programs. Contact was made with Mr. John Peabody of the Emergency Management Institute (EMI), and he said that nothing was available from them (J. Peabody, personal communication, February 9, 1999).

This paper will attempt to create a model in alternative funding and is related to Chapter VII-Alternative Funding of the *Fire Service Financial Management Student Manual* (NFA, 1997).

In conclusion, the experience American schools have had with fire and tornadoes, the laws governing preparedness, disabilities, and learning, the current issues of funding, Project Impact, and school violence have all indicated the need to deliver a consistent life safety theme through the medium of video. This project will examine the issue further and determine if alternative funding can be used to pay for such a video.

Future Impact

The Irondale Fire and Rescue Service is a small organization. The standardization of drill procedures in schools is a proactive attempt to save lives and assist the limited resources by making emergency operations more manageable in the event of a school disaster.

LITERATURE REVIEW

By design of this study, much of what can be written in the literature review relates to an entirely different medium. Although a few published articles will be examined, the focus will be on produced videos that address assembly drill behaviors. Considering that this research is to determine if alternative funding can be used to produce a drill tape, a model is being created that previously did not exist. Although it is impossible to adequately compare the findings of others to a new model, an attempt shall be made.

A number of related films were reviewed for content and approach. Publications of the USFA, NFPA, and Synsistar, Inc., were consulted, as was the data base of the Learning Resource Center of the National Fire Academy, FEMA, the American Red Cross, the National Safety League, the Birmingham Public Library, the Jefferson County School System, the Alabama Department of Education, and the United States Department of Education. In all, five videos were identified and reviewed. A number of articles were also summarized in this process.

Fire and Tornado Drill Videos

The first fire drill video reviewed was produced by the NFPA. *Fire Drill: The Life Saving Mission* (which costs $383.75) explains the importance of drills by comparing them to a simulator routine of space shuttle astronauts (NFPA, 1985). The space shuttle *Discovery* was used in this video. After the space shuttle *Challenger* accident, the video was discontinued. Only recently has NFPA reintroduced this product in their sales catalog. The basic drill procedures for schools are covered in this video.

The Idea Bank produces *Public Assembly Fire Safety* (Lambert, 1996), which focuses on four main subjects: (a) code compliance, (b) the establishment of a life safety maintenance schedule, (c) the consideration of disabilities, and (d) the establishment of employee responsibilities. This film explores the human psychology aspect of fire evacuation. Specific drills are not addressed in the video. The cost for the film is $195.00.

An old film called *Fire Drill,* by Alfred Higgin Productions, Inc. (Higgin, 1960), introduced the saying "stay low and go." This film is dated by clothing and hairstyles but covers fire drills well. Life safety plans are not addressed. The cost is $340.00 per copy (USFA, 1988).

Syndistrar, Inc., produced and distributes two films that also cover fire drills. The first one, entitled *Sam's Lesson in School Fire Drills*, targets Pre-K and primary grades (Syndistar & Fox, 1998). The cost for the video is $195.00, and it is a delightful puppet-human interactive presentation that is handled in a news reporting format. The program stresses the problems that arise from false alarms. Drill behaviors are adequately covered. The second film, *For Safety Sake: Practice Fire Drills,* costs $195.00 and targets junior and senior high school grades (Syndistar & Fox, 1998A). This program is formatted in a video magazine style with teenage reporters covering a number of stories. The important drill behaviors are adequately covered.

Vice-President Greg Fox, Jr., of Syndistar explained their process of determining (research) new products. They maintain a data base of fire safety professionals whom they survey to determine a specific need. Once the direction has been established, a staff member researches the topic and writes the script.

The closest project found that resembles this effort is a film scheduled for release this year by the

USFA called *Get Out and Stay Alive.* No cost has been determined for this film that provides college students with critical information regarding fire safe living conditions in on- and off-campus housing. This video was produced by the Eau Claire, Wisconsin Fire Department and was created by a $78,895.00 grant from the USFA. A production company prepared the script, filmed and edited the program, and designed the packaging. The film should be released in the near future (Eau Claire Fire Department, 1999).

The only tornado video found was one produced by the State Farm Insurance Company (1996) entitled *Tornado Plan to Survive.* Although it does not cover schools, the video recreates a number of tornado incidents and discusses behaviors that enhance survival. A couple of tips (i.e., seeking shelter under bridges and driving at right angles away from an approaching tornado) presented in the video are not totally accepted life-saving behaviors. This may indicate a limited review process. There is no cost for the video. Collectively, these videos gave the researcher information about various topics and a format for presentation.

Fire andTornado Drill Articles

Kenneth Steward's perspective on fire drills in the article "Increasing Fire Prevention Credibility With School Fire Drills" is the elimination of surprise drills (Steward, 1989). He also stresses that fire drills give children more than 120 opportunities over 12 years to practice the most complex fire survival skill—fire escape. Again, surprise fire drills are the topic of the 1985 Minnesota Fire Chief article "Better School Fire Drills."

James C. Smalley discussed the NFPA film called *Fire Drill! —The Life Saving Mission* and the six major points of the film: (a) know the alarm, (b) stop everything, (c) be quiet and listen, (d) go to the

nearest exit, (e) meet outside, and (f) wait for the clear signal (Smalley, 1985). Having access to a bull horn and media interface were discussed in an article by Jean Gatch (1999) called "School Fire Drills Must Be Planned for All Probabilities to Save Lives." The last fire drill article reviewed was written by Larry Lillo (1987) and stressed the importance of exiting in an orderly fashion and closing classroom doors.

The two articles found on tornado drills were written by the same person. In "Brace Yourself For a Tornado," Arthur F. Brubaker explains the importance of "spotters" in the plan (1997), and in "Tornado Safety," early warning devices were emphasized (1997A).

Finding no film that covered the needs identified for the elementary schools in Irondale, Alabama, and not having the funds to purchase what was available, the researcher's resolve was strengthened to create a targeted and cost-effective drill video.

PROCEDURES

This research project employed descriptive and action research methodologies to examine the need for and use of fire and tornado drill videos in elementary schools. The procedures used to complete this research include a film/literature review, a survey of school principals, and the application of a problem-solving model to determine if a video could be funded.

Survey

A survey instrument (see Appendix B for copies of the survey documents) was prepared to

determine if structured programs were being used to teach fire and tornado drill procedures and if there were any identified barriers that prevented structured training. The survey also requested that the principals identify the preferred medium with which to teach drill behaviors.

After securing approval from Jefferson County Superintendent of Schools Dr. H. Bruce Wright, the researcher sent the survey to each of the sixty-two principals in the system. The principal of one of the elementary schools within the City of Irondale agreed to collect the returned surveys via the interagency mail system. A deadline was established for returning the surveys, and fifty-nine were returned.

Action Research

Action research involves the creation of a work product through a problem-solving process. The creation of a fire and tornado drill video funded by an alternative funding model is the purpose of this action research. The following summarizes the procedures associated with this endeavor and utilizes the seven-step problem solving process outlined in chapter four of the student manual of the National Fire Academy's Executive Development Course (NFA, 1996). Step #7 (evaluate outcome) is located in the discussion section of this report.

Step #1 - Select and Define the Problem

There are no video-based programs currently being used to teach fire and tornado drill procedures in the elementary schools in Irondale, Alabama.

Step #2 - Establish a Goal

To develop a cost effective and alternatively funded video-based program that teaches fire and tornado drill procedures in the elementary schools of Irondale, Alabama, is the goal of this project.

Step #3 - Analyze the Situation

The first part of this step is covered in the background and significance portion of this research. Beyond this, there is other background information that has to be considered.

There are four general revenue types listed in the NFA *Fire Service Financial Management Student Manual* (NFA, 1997). Taxes, fees, loans, and interest on investments were all considered and eliminated for various reasons. Other sources of funds were then contemplated.

No federal or state funds were identified as available for this project. Foundations, private and public held businesses, individuals, and organizations seemed to be the only options to fund this video. The various foundations that were contacted had a very limited scope and application period. In fact, the typical application period preceded the dispersions of approved funds by six months to a year. No individual or business was identified that was willing to fund this project. The larger corporations and affluent citizens were either not interested or already committed to other projects . The organization option proved to be the only viable funding solution for this project.

The Alabama Police and Firefighter's Association (APFA) was identified as a potential source of funding. As part of their telemarketing program, the APFA had declared to the Attorney General's Office of Alabama the commitment to projects benefitting the public. This is a common requirement placed on telemarketers by attorneys general, the United States Interstate Commerce Commission, or the United States Internal Revenue Service. None of the references identified elsewhere in this paper mentioned this source of support and thus created a new model.

The Board of Directors of the APFA requested a simple proposal that described the project, requested funds, and a stated completion date. Alabama State Fire Marshal John Robison and Alabama Department of Education Superintendent Dr. Ed Richardson were contacted and invited to

join the emerging coalition. They accepted, provided valuable input, and appeared on the video. With the support and high profile of these public figures, the vision was presented to a local television station. Garry Kelly is the News Director of ABC 33/40 in Birmingham, and he agreed to contribute the personnel and materials to complete the filming and editing of the video. This contribution made the difference in the proposal. Normally, the charge for these services is approximately one thousand dollars per minute of finished tape (D. Black, personnel communication, March 4, 1999). Since script development was the responsibility of the Irondale Fire & Rescue Department, the only additional cost would involve tape duplication. A decision was made by principles of the coalition (APFA, ABC 33/40, and the Irondale Fire and Rescue Service) to expand the distribution of the tape statewide. Cost estimates for tape duplication were obtained and added to the other expenses to complete the proposal. A request for ten thousand dollars was considered and approved by the Board of Directors of the APFA as a grant to be used on this video.

Step 4 - Define Strategies and Objectives

The strategy was to produce and copy the video within the budgetary restraints of the grant.

Objectives

Nine primary objectives were identified for completion of this project.

#1 Develop Script

#2 Assemble Review Committee

#3 Cast Actors

#4 Identify Filming Sites

#5 Develop Props

#6 Film the Video

#7 Edit the Video

#8 Secure a Contract For Duplication

#9 Plan of Distribution

Step #5 - Develop Action Plans, and Step #6 - Implement and Monitor

Each item listed in the general action plans involves two or more supporting plans that are not included here because of space. Each supporting plan identified the responsible person(s), a completion date, and a benchmark for determining completion.

Objective #1 - Develop Script

A description of the project and a request for information and/or comments were sent to fire marshals, educators, school administrators, fire prevention and disaster specialists, and meteorologists before script development started. Due to target age differences, a decision was made to format the video in three different segments. A review of the videos and articles mentioned earlier also preceded the script. With this completed, the outlines of the various scripts were prepared. Mrs. Janet Hipps (Executive Director of the Rural Community Fire Protection Institute) wrote the entire children's script entitled "Fire Drills: Preparing For Emergencies." Dwight Graves (Public Information Officer (PIO) of the Irondale Fire Department wrote the scripts for "Fire Drills: The Administrator's Prospective," and "Storm Alert: Surviving Tornadoes In Schools." The information in the publication "Talking About Disasters: A Guide for Standard Messages" (Lopes, 1999) was utilized in order to convey consistency throughout the video. Specific target dates were established for the completion of these scripts.

All three scripts were scored in the "Flesh-Kincaid" system to determine the grade-school level

they were written in. "Fire Drills: Preparing For Emergencies" is written in a fourth grade, fourth month level. "Fire Drills: The Administrator's Prospective" is rated at grade eight, fifth month while "Storm Alert: Surviving Tornadoes In Schools" rates grade nine, seventh month.

Objective #2 - Assemble Review Committee

In much the same way that the project was "sold" to the television station, the vision was presented to an impressive group of reviewers. They were asked to become members of the coalition, study the scripts, and provide opinions and ideas concerning the project. An electronic mail group was created to keep everyone informed. This proved to be extremely beneficial and necessary, considering how geographically distributed this group was. Comments were solicited every time a new change or process was initiated. Appendix C is a list of those reviewers and coalition members.

Objective #3 - Cast Actors

The producer and fire department liaison with the television studio (Tracy Bynum) was extensively familiar with local talent and video production practices. She contacted a local talent agency and secured a public service commitment from two actors. In addition to these, three children studying theater at the Alabama School of Fine Arts and their teacher agreed to help. The balance of children and adults in the video came from either a local elementary school or firefighters' families. Ethnic and gender diversity were considered in the casting process. Disabilities were also addressed. The children and adults that performed drills in the video practiced every afternoon for two weeks prior to filming. A pizza party was used as a reward for their hard work. Releases and/or agreements were signed by all actors acknowledging their donation and the purpose of the project. And finally, the parents of all children appearing in the video signed releases before they were allowed to participate.

Objective #4 - Identify Filming Sites

The selected sites for filming this video were determined by the appropriate atmosphere, logistical challenge, and the resolution of schedule coordination and conflicts. The filming took place at two schools and at the television station utilizing news cameramen. Actual film footage was used whenever possible. Several of the filming sessions had to be canceled and rescheduled because of the development of breaking news.

Objective #5 - Develop Props

A few props and materials were identified as needed for completing this project. When possible, they were borrowed from area fire departments or schools. Donations and discounts were solicited from merchants and manufacturers of needed commodities. A couple of the items were purchased out of the project's budget.

Objective #6 - Film the Video

The filming took place at three sites and on eight different dates. These filming sessions were coordinated with the television station, actors, and filming sites. Weather forecasts were considered before scheduling an outdoor session. Alternate dates were established in the event a filming session had to be canceled. Extensive footage was shot to ensure a viable project. Ms. Bynum and cameramen from ABC 33/40 specified the action, lighting, and shot angles while the fire department personnel monitored the integrity and accurateness of the content and images.

Objective #7 - Edit the Video

The editing capabilities of ABC 33/40 are truly state-of-the-art. All of the filming and most of the actual footage was in the digital film format; however, beta and u-matic film formats were also used.

Most of the problems associated with this project developed during the editing stage. The television station's agenda and commitment seemed to waver according to scheduled programming and personnel assignments. The cameramen also edit the tape in television studios. Though a tremendous amount of energy and resources were spent editing this tape, in retrospect, this portion of the effort would have to be considered inefficient. The fire department did not have control of the project; and the television studio, weary from their investment of time, lost their initiative because of one crisis or another and almost caused the project to be canceled on several occasions.

During the editing stage, the Project Impact logo was added to the tape to contribute to the local effort to mitigate disasters. Mr. Copenhaver (Region IV Director) of FEMA planned to share the video with other Project Impact sites.

Objective #8 - Secure a Contract For Duplication

Once the coalition principles approved a proposed final edit, a master copy was prepared for duplication. A contact provided by the television studio proved to be the best source for duplicating the tape. Before that was decided, bids were received from a number of processors. Cost, labels, product packaging, tape quality, reputation, and turn around time were considered. PIO Dwight Graves designed the label and created the film presentation package.

Objective #9 - Plan for Distribution

A number of distribution plans were developed for local, state, and national audiences.

The local plan was direct delivery to the schools within Irondale. The Jefferson County principals received their videos during their annual summer meeting. The tape was also distributed to area fire departments at the monthly Central Alabama Fire Chief's Association luncheon.

The state plan utilized the Alabama Department of Education. The tapes were shipped to the capitol to be given to local officials at the superintendent's summer meeting. Over eighteen hundred tapes (representing every public kindergarten through high school in the state) were slated for distribution at the July meeting. A master copy of the tape was provided to the audio-visual lab of the education department to ensure continual tape availability. They have the capacity of duplicating fifty VHS formatted tapes at a time. Identifying private schools was much more difficult. Each sanctioning body has to be contacted individually, and because of separation of church and state issues, no government body maintains a current data base. Several of these groups were identified and given videos as of the date of this report. Others were to be sought out before the beginning of the school year.

Nationally, the tape will be distributed free to all NWS Offices, all chapters of the National Safety Council, and to every state fire marshal. Through an agreement with the FEMA, any state or local emergency management agency will be able to copy the tape via FEMA's Emergency Education Network (EENET) program (see Appendix D for the EENET broadcast notification). The completion of this project coincided with several major tornadoes, which sparked FEMA's interest in sharing this tape with others. The American Red Cross plans to offer the tape for five dollars to its chapters across America and her territories. Unfortunately, the legal environment mandated a series of release documents that this distribution plan depended upon. A sample release is attached for review (see Appendix E for a duplication release).

Tapes were also distributed to the participants at the 1999 conferences of the Alabama Fire Chief's Association, the Alabama Firefighter's Association, the State Emergency Manager's Association, and

the Alabama Association of Volunteer Fire Departments.

Assumption

It was assumed that each survey respondent answered the questions honestly without any outside or conflicting influence.

Limitations

The limitations that affect this project include time, control, conflicting information, and the lack of prior research. The six month deadline placed on the applied research projects of the NFA is difficult to meet. Large projects (particularly coalitions) are hard to manage without the ability to control them. Also, it is confusing and frustrating to deal with erroneous script information, and this project was about creating a model where no research existed.

Summary of Procedures

This research project employed descriptive and action research methodologies to examine the need and use of fire and tornado drill videos in elementary schools. The procedures used to complete this research included a film/literature review, a survey of school principalss, and the application of a problem-solving model to determine if a video could be funded.

RESULTS

A survey were sent to each elementary, middle, and high school principal in the Jefferson County School System (a total of sixty-two). A total of fifty-nine were returned. Appendix F summarizes those returns.

Research Question One

What video-based programs are available?

Within the literature review, seven videos were discussed. None of them addressed fire and tornado drill procedures. They focused on life safety, fire drills, or tornado drills. The answer to question number one is that no fire and tornado drill video could be found.

Research Question Two

Is funding a problem for principals in obtaining a video-based program that teaches fire and tornado drill procedures?

Forty-five principals responded to the survey indicating that they are not currently using a structured program to teach fire and tornado drill procedures. Thirty-two of these (71%) listed funding as the primary barrier keeping this from happening. An additional eight did not know where such a program existed, and five stated that there was not enough time to use such a program. The principals' survey corroborated the interviews referenced in the Background and Significance section of this paper indicating funding is definitely a problem in obtaining a

video-based program that teaches fire and tornado drill procedure.

Research Question 3

#3. Can an alternative funding model be used to create a cost effective video-based fire and tornado drill procedure program?

See appendix A! The film chart (Appendix G is a film chart) clearly shows the value of such a product. A comparable commercial product (if one were available) would cost hundreds of thousands of dollars. The budget for this project was $10,000.00. Originally, the plan called for 2,500 copies of

the video. The number of videos was increased to 3,200 copies to accommodate an evolving distribution plan. The total cost of this project ($6,418.50) is reflected in the attached grant financial statement (Appendix H).

Unexpected Findings

An unexpected finding of the project was the various positions that disaster experts took on subjects resulting from their organizational agendas. There was significant difference of opinion on several of the fire and tornado issues that had to be resolved before the project continued. In time, a settlement occurred through an arbitration process that created gray language. Though the differences of opinion were handled, a lot of patience was required before consensus could be reached.

Another unexpected finding was that much more effort and patience was required to complete this project than was anticipated in the beginning. This was due to the lack of control one has on donated services and the lack of experience the researcher had in producing videos.

DISCUSSION

The film produced in this project targets ages pre-K through adult and covers the basics of fire and tornado drill behaviors as well as life safety planning in schools. Applicable codes that cover drills and housekeeping practices, engineering concepts, and special emphasis on the disabled are also covered in at least one of the three segments on this video.

There are a number of videos identified as related, but none of them cover fire and tornado drill behaviors. The only film that focuses on life safety planning does not address drill behaviors.

Please refer to Appendix H, which is a copy of the film chart. The following prices are based on the purchase of 3,200 copies.

Fire Drills: The Life Saving Mission (NFPA, 1985) covers fire drills only and does not address life safety planning. Pre-K and elementary aged children are the target audience. Over $1,228,000.00 would be required to purchase this film.

Public Assembly Fire Safety (Lambert, 1996) does cover life safety planning but does not address fire or tornado drill procedures. An estimate of the cost to provide this video to the schools in Alabama was $624,000.00. The most appropriate viewing age for this video is senior high through adult.

Fire Drill (Higgin, 1960) is a complete fire drill video, but it does not look at tornado drills. It would take $1,088,000.00 to provide these "elementary-targeted" videos.

Each of the Syndistar videos, *Sam's Lesson In School Fire Drills* (Syndistrar & Fox, 1998) and *For Safety Sake: Practice Fire Drills* (Syndistrar & Fox, 1998A), would cost $624,000.00. They focus on fire drills alone, and each one is for a different age group.

To date, no cost has been established for the USFA film entitled *Get Out and Stay Alive,* but certainly there will be distribution restrictions on this life safety film. This video is worth considering as a possible model, even though it does not cover drill procedures. Its cost of $79,000.00 makes it a bargain, but it cannot compare to the donated work product created in this project (Eau Claire Fire Department, 1999).

Only when making an economic comparison of this project and the tornado video *Tornado: Plan to Survive* can the value of this model be equated. The tornado film is available in a very limited quantity and for free, but it does not cover school procedures.

Step #7 - Evaluate Outcome

Effectiveness and Outcome

The following is closely related to results but is placed under discussion because it does not answer any of the research questions.

Question two of the principals' survey asked if a structured program would be of value to students. Ninety-seven percent (57) of the principals reported that they thought a structured program was valuable, and the majority thought that video was the best medium to use.

The video was scored under the Pan-Education Institute's criteria of school-based programs (Pan-Educational Institute, 1988). From program goals to parent involvement, there are twelve categories in which to grade a program. The Pan developers created the program because everyone involved in the decision-making process needs a systematic way to evaluate the appropriateness and quality of a proposed program. The video stood this test and scored in the "high quality" category.

To further evaluate the effectiveness or outcome of the video, a survey instrument was prepared for three different groups (see Appendix I for effectiveness survey). The same procedure was used in all cases. The participants were given a description of each section of the video and then allowed to review it. The first group consisted of twelve firefighters attending a fire officer school in Irondale, Alabama. They averaged 7.6 years on the job. The firefighters were asked if the content was accurate, useful, and if it was a solution to the lack of drill standardization. They were also asked if the quality and length of the film were acceptable. All responses were in the affirmative, or positive in nature. The second survey was given to twenty-two public fire educators that averaged fifteen years and three months of experience. Once again, all answers were in the positive except two who thought that the

video was not a solution and was too long. The survey was also given to twenty-five kindergarten and elementary school teachers at a workshop. All the responses were favorable except in the area of program length. Here, the teachers were critical of the program length but did not understand the intended viewing process. They thought the coalition's intent was a single viewing session.

To determine if the targeted age group could comprehend and recall the presented video material, a five question test (see Appendix J) was substituted for the survey instrument and given to twenty-three sixth graders. Their average age was eleven years and three months. The frequency of correct responses was 98.6%. Clearly, they could recall the topic addressed in the video.

Another indication of the project's success is the affiliation of the Bunzel Grocery Bag Company (Puducah, Kentucky) with this effort. They started producing a grocery bag (Appendix K is a picture of the bag) with a list of tornado safety rules that is distributed to independent grocery stores in Alabama, Georgia, Mississippi, and Tennessee. Thousands of these bags (with safety rules concerning tornadoes) are placed within American homes each day, and there are no public funds involved.

The Idea Bank is a clearinghouse of fire safety products and services that utilizes the internet. Their web site is located at the following address: www.theideabank.com. They agreed to post notice of the release of the tape on a monthly e-mail service called "Ideas at Work." This posting (see attachment L for a copy of the posting) produced two hundred and twenty-three requests for this tape.

A new edition of the United States Fire Administration's FA-141, *A Guide to Funding Alternatives for Fire and Emergency Medical Services Departments,* is being prepared for printing. Mr. William "Bill" Troup is the contract administrator for this project, and he was contacted concerning the *Drill Today: Survive Tomorrow* project. Information about the tape and the funding

model created in this project will be included in the next edition of FA-141. Hopefully, other partnerships will benefit from this information.

The Irondale Fire and Rescue Service will utilize this video-based learning program to assist elementary schools in preparing their life safety plans and establishing standardized fire and tornado drill procedures. This is consistent with the fire service's mission of protecting life and property. This research produced a genuine and permanent product that is free from administrative costs and the restraints connected with public funds. It gave a number of individuals and organizations an opportunity to serve the public in a universally effective way that was free of politics but full of conviction, sincerity, and tribute. They embraced this opportunity with zeal and commitment. In fact, the concept of coalition building seems to have caused the community to question traditional roles and relationships. Mr. Ammons of the APFA summed those feelings up by saying, "Anything seems possible now!" (D. Ammons, personal communication, March 1, 1999). This video project has proved to be a segue to other projects in which the Police and Firefighters' Association is interested. Nursing home safety and school violence are but two of the topics discussed as future endeavors.

RECOMMENDATIONS

The following recommendations are offered as a result of this research project.

Recommendation 1. Seek out alternative support for needed and unfunded projects. Look into the telemarketing industry to determine if your project is consistent with the benefactor of the funding raising.

Recommendation 2. Coalitions work but one must be careful to build them with interested and knowledgeable groups that will work toward common goals. Practice patience and tenacity while building consensus.

Recommendation 3. Make sure that the project is addressing a legitimate need. Research or explore the topic to the point of being an authority on the issue.

Recommendation 4. Use as much previously prepared material as legally possible. Do not reinvent the work product.

Recommendation 5. Try to maintain control and direction. Although agendas vary, try to set timetables. Don't get discouraged if the project does not move as fast as planned. Determine if there is a shared vision and commitment to the project.

Recommendation 6. Fire and weather safety information can be printed on grocery bags at no cost to the public. This is a direct route of adult and child education that should be considered.

Recommendation 7. Video is a powerful and effective medium that should be employed in public education.

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Appendix A
Drill Today: Survive Tomorrow Video

(Video is contained within shipping container)

Appendix B
Survey Documents

3/22/99

JEFCOED

Jefferson County Board Of Education
2100 18th Street South
Birmingham, Alabama 35209-1891
Telephone 205/930-3800

March 17, 1999

MEMORANDUM

TO: All Principals

FROM: H. Bruce Wright, Superintendent

RE: City of Irondale's Fire and Tornado Drill Survey

Attached please find a copy of a Fire and Tornado Drill Survey that the City of Irondale wishes all our schools to complete. You will be receiving the actual survey soon. Carolyn Blackwell at Grantswood is their contact person for you to return your completed forms.

I urge your consideration of completing the survey and returning it to Carolyn Blackwell. Thank you.

/jrb

Attachment

Appendix B1
SURVEY DOCUMENTS-FIRE AND TORNADO DRILL SURVEY

Hello Principal,

My name is Joe Lynch and I am currently serving the City of Irondale, Alabama as their Fire Chief. I am asking for your assistance to determine if and how students are taught to behave during fire and tornado drills. This survey is being sent to you via the Pony interoffice mail system. Dr. Wright has agreed to post the results of this survey on the electronic mail system during the month of May, 1999. Your responses will be anonymous and will be included in an applied research project for the National Fire Academy's Executive Fire Officer Program. **Please return this survey by April 15, 1999, to Mrs. Blackwell at Grantswood Elementary by the Pony system.** Thank-you for your assistance!

Directions: Answer all questions by circling the answer. Mark only one answer for each question.

1. Do you currently use a **structured** program to teach fire and tornado drill procedures to your students?

   A. Yes.

   B. No.

2. Is (or would), such a program **be of value** to your students?

   A. Yes.

   B. No.

3. If the answer to #1 is No, which **one** of the following is the **primary barrier** that prevents you from utilizing such a program? If you are currently using a program, ignore this question.

   A. Time to use such a program.
   B. Interest that you have in using such a program.
   C No resources available to fund such programs.
   D. Lack of authorization to use such a program.
   F. The knowledge of where a program such as this exists.

4. What **medium** would **you suggest** using for teaching students fire and tornado drill behaviors?

   A. Written form (As a procedure or in a posted message).
   B. Voice recorded (audio only).
   C. Video-taped (audio and visual).
   D. Computer (audio and visual).
   E. Live demonstration.

Appendix C
Content Reviewers and Coalition Members

ABC 33/40 Dave Baird, Tracy Bynum, Gerry Kelly, James Spann, Tiffany Taylor, Josh Thomas,Stew Jones, Jerry Wade, Bill Castle

Alabama Association of Volunteer Fire Departments, Johnny Dennis-President

Alabama Fire Fighter's Association, Mr.Bill Bulman-President

Alabama Fire Chief's Association, Chief William Hewitt-President

Alabama Fire Marshal's Association, Chief Alan McLemore-President

Alabama Police and Firefighters Association, Donald McKee, Executive Director, Don Ammons-Executive Secretary

Alabama Rural Community Fire Protection Institute, Janet Hipps-Executive Director

Alabama School of Fine Arts, John Northrop-Executive Director, Elizabeth Adkisson-Drama Instructor

Alabama State Department of Education, Dr. Ed Richardson-State Superintendent of Education, Dr. Sue B. Adams-Education Administrator, Prevention and Support Services, Mr. Ken Karr-Education Specialist, Pupil Transportation

State of Alabama, Department of Insurance, State Fire Marshals Office, John S. Robison-State Fire Marshal (current President of the International Fire Marshal's Association)

Alabama State Fire College-William L. Langston, Executive Director

American Red Cross-Rocky Lopes, Ph.D., Community Disaster Education

Children's Hospital of Alabama-Lois Alexander, Director of Check Center

Center Point Fire District (Alabama), Lieutenant David Thornburg, and Deputy Chief Donald P. West, Jr.

Fairfield Fire Department (Alabama), Assistant Chief Dave Erwin

Federal Emergency Management Agency, Emergency Management Institute, Preparedness Branch-Training Division, John Peabody, Branch Chief

Federal Emergency Management Agency, United State Fire Administration, National Fire Academy, Gerry N. Bassett, Program Chair-Training and Education

Grantswood Elementary School (Jefferson County), Carolyn Blackwell-Principal, Ilene Egerman-Retired Principal, Mrs. Nello Bruner

Hoover Fire Department (Alabama), Battalion Chief Alan McLemore

Irondale Fire Department (Alabama), Cissy Appleton, Brad Doss, Dwight Graves, Assistant Chief Jim Jarrell, Buddy King, and Chief Joe Lynch

Jefferson County Board of Education, Dr. Bruce Wright-Superintendent, Dr. Yancy Morris-Asst. Superintendent, Ms. Nez Calhoun-Director of Public Information

Jefferson County Emergency Management Agency, Woody Odom-Acting Director, Tracy S. Sargent, M.P.H., Training & Exercise Officer

Latta Enterprises, Accessibility and Safety Consultant Firm, Marie Latta, M.Ed., President

Marlin, Bridges, & Associates, Inc. (Structural Engineers) Birmingham, Alabama, D. Gordon Ball, P.E.

National Fire Protection Association, Meri-K Appy - Vice President of Public Education, Judy Comoletti-Director of Public Education, Julie Reynolds-Director of Public Affairs, and Robert Solomon-Chief Building and Fire Prevention Engineer.

National Weather Service, Mr. Brian E. Peters-Warning Coordination Meterologist (Alabama)

Real People Models and Talent (Birmingham, Alabama), Michael Fulmer-Agency Director, Cassi Ferguson, Ken Hairston

Pleasant Grove Elementary (Jefferson County), Dr. Sue Garrick-Principal

Pittman Middle School (Jefferson County), Tammy Dameron-Exceptional Education Teacher

Pleasant Grove Fire Department (Alabama), Julie Coffman

Puyallup Fire Department (Washington), Diane Hyatt

Safe Kids of Alabama, Janie Applegate

Safe Kids of Birmingham, Julie Cole, BSN, RN, CPN

Samford University-Birmingham, Alabama, Gloria Russell, Instructor

Shades Valley High School (Jefferson County), Jan Dennis-Principal

Southeast Child Safety Institute (Birmingham, Alabama)-William D. King, RPh., MPH., DrPH

Texas Tech University, Wind Engineering Research Center (Lubbock, Texas)-Larry J. Tanner, PE, RA

The Birmingham News-Kathy Seale, News Staff Writer

Vincent Elementary School (Shelby County),Tricia Corbett-Principal

Appendix D
August 18, 1999, EENET National Alert Broadcast Notification

Subj: AUGUST 18, 1999 EENET NATIONAL ALERT BROADCAST
Date: 8/11/99 12:05:21 PM Pacific Daylight Time
From: eenet@fema.gov
Sender: owner-eenet-list@fema.gov
To: eenet-list@fema.gov, dwellman@fema.gov

This is a message from the FEMA EENET-LIST list.

EENET Presents

"NATIONAL ALERT"

August 18, 1999 -- 2:00-3:30 p.m. EASTERN TIME

Training Feature - "Hurricane Evacuations" -- The decisions to evacuate coastal areas when hurricane landfall is predicted are not made lightly. This story from Dare County, North Carolina shows how local officials gather information and work together to evacuate thousands of residents and tourists off of the Outer Banks of North Carolina. Produced by Dare County Emergency Management and Falcon Cable TV.

Training Feature - "School Fire Drills" -- This program is aimed at school administrators who are responsible for planning and conducting school fire drills. Includes information for teachers on organizing their classes and outlines the role of school officials and support staff involved in conducting these drills. Produced by the Irondale, Alabama Fire Department and TV Alabama Inc.

First Responder - "Rapid Intervention Teams" -- This month the Virginia Beach Fire Department demonstrates the use of Rapid Intervention Teams to rescue downed fire fighters caught inside burning buildings. Includes information on team organization, rescue techniques and extrication methods.

FEMA Update - This month's report includes two fire safety Public Service Announcements.

Training News - News and announcements from the National Emergency Training Center. This month includes a story on the dedication of the "Walk of Honor" at the National Fallen Fire Fighters Memorial.

Training Feature - "New Uses for Fallout Shelters" -- Buildings all over the country still display "Fallout Shelter" signs. In this story from FOX 43 News in York, Pennsylvania you will see how the York County Emergency Management Agency has found new uses for the supplies stored in their shelters.

Training Feature - "Is Your Chimney Safe" -- Sale of wood burning stoves are way up this year. Some people have speculated that this is because of the fear of Y2K related power failures. To safely operate a wood stove your chimney should be cleaned and inspected. Chimney sweep Paul Cole explains the potential for chimney fires and what you can do to prevent them.

The remaining 30 minutes will feature "You Are a Boater: Personal Watercraft Safety." In this half-hour program from the United Safe Boating Association you will see all of the safety tips for operation of personal watercraft. Includes information on marine right-of-way as well as information on regulations concerning personal watercraft.

SATELLITE INFORMATION:

C-BAND

Galaxy 6
Transponder 24
Downlink Freq.: 4180 MHz
Audio Freq.: 6.2/6.8 MHz
Location 99 Degrees West
Polarity: Vertical

Ku-BAND

SBS 6
Transponder 4
Downlink Freq.: 11798.5 MHz
Audio Freq.: 6.2/6.8 MHz
Location: 74 Degrees West
Polarity: Vertical

A TECHNICAL TEST WILL BE AIRED FOR FIFTEEN (15) MINUTES PRIOR TO THE BROADCAST.

Subj: AUGUST 18, 1999 EENET NATIONAL ALERT BROADCAST
Date: 8/11/99 12:05:21 PM Pacific Daylight Time
From: eenet@fema.gov
Sender: owner-eenet-list@fema.gov
To: eenet-list@fema.gov, dwellman@fema.gov

Appendix E
Duplication Release

P.O. Box 360039 • Birmingham, AL 35236
800 Concourse Parkway, Suite 200 • Birmingham, AL 35244
(205) 403-3340 • Fax: (205) 403-3329

Video Limited License Agreement

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TV Alabama, Inc.

By _____
Video Limited License Agreement

User

By _____

Appendix F
Survey Results

Surveys Distributed 62

Returned Surveys 59

(This number assures a 95% confidence level in the sample.)

Question #1.

Answer	Respondents	Percentage
NO	45	76%
YES	14	24%

Question #2.

Answer	Respondents	Percentage
YES	57	97%
NO	2	03%

Question #3.
Of the 45 No Answers to Question #1

Answer	Respondents	Percentages
A. (Time to Use)	5	11%
C. (No Resources)	32	71%
F. (Knowledge of Program)	8	18%

Question #4.

Answer	Respondents	Percentages
C. (Video)	32	54%
E. (Live)	27	46%

Appendix G
Film Chart

NAME OF FILM	FD	TD	LS	CA	AGE	COST
Fire Drill: The Life Saving Mission	Y	N	N	Y	P, E	$1,228,000.00
Public Assembly Fire Safety	N	N	Y	Y	H, A	$624,000.00
Fire Drill	Y	N	N	N	P, E	$1,088,000.00
Sam's Lesson In School Fire Drills	Y	N	N	Y	P, E	$624,000.00.
For Safety Sake: Practice Fire Drills	Y	N	N	Y	M,H	$624,000.00
Get Out and Stay Alive N	N	Y	Y	A		$79,000.00
Tornado: Plan to Survive	N	Y	N	Y	A	-0-

FD - Fire Drill
TD - Tornado Drill
LS - Life Safety
CA - Currently Available

A - Adult
E - Elementary
H - High School
M - Middle School
P - Pre Kindergarten and Kindergarten

Appendix H
Grant Financial Statement

Total Grant:	+ $10,000.00
Cost of Duplication (3200 T-45 tapes copied, labels, cardboard sleeve, shrink wrapped, shipping)	- $5,600.00
Related Expenses (Food, props, postage, video tape, other assorted materials)	- $756.00
Shipping Tray	- $62.50
Total	- $6,418.50
Balance (amount of grant not used)	+ $3,581.50

Appendix I
Effectiveness Documents-Survey

After reviewing the description of the various segments of the video "Drill Today-Survive Tomorrow," you will be shown the three segments. Please indicate your observations/impressions on this survey form by the letter Y for "yes," and N for "no."

	Segments		
	1	2	3
Is the content:			
A. Accurate	__	__	__
B. Useful	__	__	__
C. A solution to the lack of standardized drills	__	__	__
D. Is the quality of the film acceptable?	__	__	__
E. Is the length of film acceptable (When viewed in three separate time segments).	__	__	__

Appendix I-1
Effectiveness Documents-Description of the Video

The video is in three "stand-alone" segments.

Segment One - Target Audience: Age 6 - Adult
Fire Drills: The Administrator's Prospective

This segment looks at the development and maintenance of a life safety plan for educational institutions. It addresses national codes, practices, and procedures. Issues relative to housekeeping, people with disabilities, and resource identification are presented and discussed along with fire drills. This segment can be used as an in-service for staff as well as part of an orientation process.

Segment Two - Target Audience: All Ages
Storm Alert: Surviving Tornadoes in Schools

This segment presents two options for tornado drills and discusses measures to take in the event a tornado is approaching. The National Weather Service and local Emergency Management Agency assisted in preparing the script. A local television meteorologist provides the narration as well as personally appearing in the tape.

Segment Three - Target Audience: K - 6
Preparing For Emergencies

This is a story in which three children try to win a health and safety award by researching and recording the responsibilities of the fire department, school administration, and students during fire drills. There is a tie-in to the local television media coverage of a school fire. Local television personalities appear in this segment.

Appendix J
Five Question Test

AGE _____ Years and Months

1. How often are fire drills required?

A. One a year
B. One a month
C. One a week
D. Every day

2. Whose job is it to determine if it is safe to return into the building after a fire?

A. The students
B. The teacher
C. The fire department
D. The Dare officer

3. How should students leave the school during a fire drill?

A. Any way as long as you can get out
B. The way you normally leave to meet your ride at the end of the day
C. In a line behind the teacher or line leader
D. Never leave until the room has been cleaned up

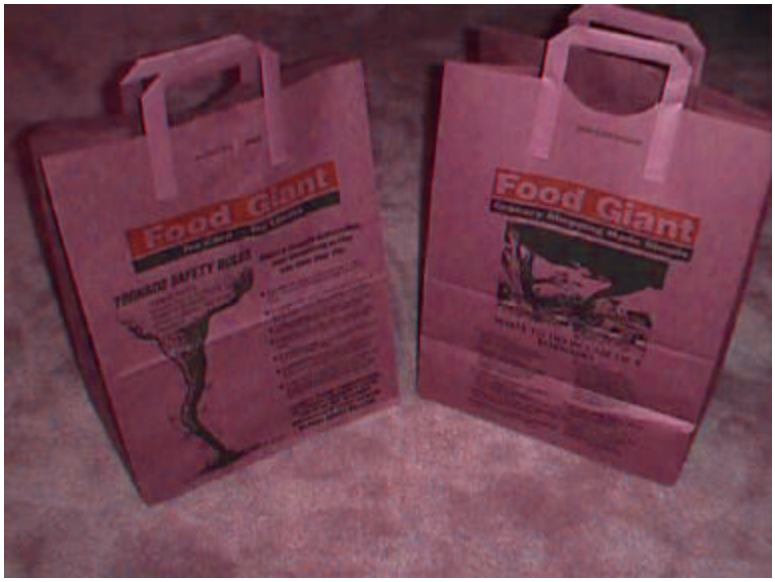
4. Fire drills mean that you go out. Tornado drills mean that you _____.

A. go in
B. go out
C. stay where you are
D. close the windows

5. What is the best way to learn about a tornado that is coming your way?

A. Reading about it in the newspaper
B. Hearing about it from a friend
C. Weather sirens
D. Weather radios

Appendix K
Picture of Grocery Bag



Appendix L
Posting on the Idea Bank

Ideas at Work

"Drill Today--Survive Tomorrow!"__

_The Alabama Police and Firefighters Association is offering a new video (free) to help people survive a fire or tornado in an educational facility.

Segment One...FIRE DRILLS

Target Audience--Age 6 to Adult.
How to develop and maintain a life safety plan, including codes, practices and procedures
The video covers housekeeping and disability-related issues._ This segment can be used for in-service training of staff, or as part of an orientation process.

Segment Two...SURVIVING TORNADOES IN SCHOOLS

Target Audience--All Ages
This segment demonstrates two options for tornado drills, and shows what to do when a tornado approaches.

Segment Three...PREPARING FOR EMERGENCIES

Target Audience--K through 6
This segment tells the story of three children trying to win an award by recording the responsibilities of the fire department, the school and the students during a fire drill.

To obtain a free copy of this three-part video, contact the Alabama Police and Firefighters Association at (800) 577-1363, 600 Vestavia Parkway #233, Birmingham, AL 35216. (Please send $5.00 for shipping).
